PUMPING POINTERS

Q&As for pumping water into Nebraska's Rainwater Basin wetlands

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Updated: August 2014

Rainwater Basin wetlands are of international significance and host millions of spring-migrating ducks and geese annually. Approximately 90% of the mid-continent population of greater white-fronted geese, 50% of the mid-continent population of lesser snow geese, 50% of the mid-continent population of mallards and 30% of the continent population of northern pintails use the Basins during spring migration. Surveys have identified that a minimum of 300,000-500,000 shorebirds represented by 40 different species migrate through the Basins during the spring. Over 257 species of birds have been recorded in the Rainwater Basin, and the wetlands are regularly used by the federally endangered whooping crane.

If the Rainwater Basin landscape were unaltered, pumping would probably not be necessary. But the Rainwater Basin landscape has been highly modified, with nearly 90% of the wetlands destroyed or highly degraded, and the hydrology of the remaining wetlands greatly altered. This means that natural runoff does not make it to many of these wetlands and therefore ponding frequency and duration are greatly reduced. Adding supplemental water via pumping provides a direct benefit to meet the needs of the millions of migrating water birds that use this region.

Q. Why pump?
A.

- **Provide habitat for migrating water birds**- The primary reason we pump is to provide ponded habitat for the migrating waterfowl and the other water birds as mentioned above. Pumping in the fall also can provide carry-over water into the spring and make spring pumping more efficient.

- **Provide areas for wildlife observation and waterfowl hunting**- Pumping in a dry year provides waterfowl hunters a place to hunt both during the fall waterfowl season and during the late winter/spring Conservation Action light goose season. Pumped wetlands also provide areas for people to observe the millions of migratory birds that pass through this area.

- **Help spread out the distribution of migrating birds**- Large concentrations of migratory birds create concerns about competition for limited food and habitat and also the potential for disease outbreaks such as avian cholera. Pumping objectives are commonly identified prior to fall and spring migration and therefore used to strategically provide ponded habitats in such a way that redistributes birds over a larger area. By doing so, managers can reduce disease mortality and increase the amount of foraging and loafing habitats available to migratory birds.

Q. When to start pumping?
A. Several factors influence when to begin pumping. In early September, hot weather leads to high evaporation and plants that are still actively growing lead to high transpiration (water loss through growing plants). In most years, this makes pumping in early September inefficient, especially considering the low capacity of some of the pumps on public areas. In addition, there are strong concerns in the farming community about pumping ground water into wetlands, so sensitivity on when water is used and the amount used is needed. Finally, there is a limited amount of money available for pumping, so it has to be spent wisely. However, if conditions are right, some early pumping may be done for the teal season in early September.

Delaying most of our pumping to mid to late September or October takes advantage of generally declining evapo-transpiration rates and saves money and water. Most areas can be pumped to huntable levels within 2 weeks (especially if the vegetation has been managed); however there may not be an adequate depth of water for boats. The money saved by delaying pumping can be applied to pumping into later October to provide waterfowl hunting opportunities for the entire season.

In the spring pumping usually begins in mid-February to provide ponded water for the birds when they arrive.

Q. When to stop pumping ?
A. Pumping is stopped when the desired water levels are reached and can be maintained or when the money runs out, whichever comes first.

Q. What areas are pumped?
A. In early September, U.S. Fish and Wildlife Service (USFWS) and Nebraska Game and Parks Commission (NGPC) staff assess wetland water and habitat conditions. This assessment is not conducted earlier because water conditions can change so rapidly. In addition, both agencies exchange information on habitat conditions and evaluate areas that they feel require pumping. Part of the evaluation of habitat includes assessing the density and distribution of wetland vegetation. Pumping into wetlands that are choked with dense stands of vegetation will not usually provide the quality of habitat as will pumping into an area that has been managed (through grazing, burning, mowing, disking, spraying, etc.) to reduce the density of the vegetation and increase moist-soil plants attractive to waterfowl. This information is then used to make decisions about where to pump and allows land managers to estimate the amount of water needed to pond adequate water in these wetlands. Based on this information, and considering the amount of dollars available, a list is compiled of areas to be pumped.

Functional wells and pumps are only available on about 21 state Wildlife Management Areas (WMAs) and 27 Federal Waterfowl Production Areas (WPAs).

Q. Why aren't more areas pumped?
A. Wetlands are not always wet. It is good for wetlands to periodically go dry, so it would not be good to pump all of the wetlands all of the time. However, because the Rainwater Basin landscape has been so drastically altered, the Rainwater Basin Joint Venture has an objective of providing reliable water to more basins.

There are two reasons that more areas are not pumped. Many existing public areas cannot be pumped because the USFWS or NGPC do not own enough of the basin and pumping could possibly flood the neighbor's land in the remainder of the basin. The other reason is that it costs money to drill new wells, acquire pumps, and operate the pumps. As funds become available, new pumps and wells may be added. In addition, there may be opportunities to obtain flood agreements from neighbors or to pay for neighbors to provide supplemental water for public/private areas.

Q. How much water is used?
A. The amount varies greatly depending on the conditions. In some years almost no pumping is done. On average, with spring and fall pumping combined, approximately 2,500 acre-feet of water are pumped on public lands. To put this in perspective, this is equivalent to the amount of water used to irrigate crops on about 3 sections of land. We comply with all Natural Resources District and Nebraska Department of Natural Resources rules regarding wells and ground water use.

Q. How much does it cost?
A. Costs vary greatly based on the type of well and pump, the energy source used to power the pump, and the size of the basin. In 2005, costs per day to pump a given state Wildlife Management Area ranged from $50 per day to over $200 per day. In 2011, costs per day to pump federal Waterfowl Production Areas ranged from $34 per day to over $500 per day.

Q. How is it paid for?
A. Fall pumping on NGPC lands is paid for with money that is budgeted for each area totaling approximately $20,000. The funds for pumping state areas come from the sale of state Habitat Stamps and Federal Aid in Sport Fish and Wildlife Restoration funds paid by hunters and other conservationists. Pumping on federal WPAs is paid for out of the U.S. Fish and Wildlife Service Rainwater Basin operation and maintenance budget. Federal duck stamp monies are not able to be used for operation and maintenance costs such as pumping.

Q. Who can people contact for more information?
A. Contact the U.S. Fish and Wildlife Service office in Kearney (308-263-3000) with questions about pumping of Federal areas, information is also available at http://www.fws.gov/refuge/rainwater_basin_wmd/ . Contact the Nebraska Game and Parks

Commission's District Offices or the area wildlife biologist with questions about pumping of state areas. The location of state Wildlife Management Areas and news releases listing areas pumped is available at www.OutdoorNebraska.org. General wetland information is available at www.nebraskawetlands.com.

The Rainwater Basin Joint Venture *Implementation Plan* and the publication *Water Management Options for Wetland Development in the Rainwater Basins* are available at www.rwbjv.org.